

## CLAIMS

What is claimed are:

- 5 1. A method of manufacturing a flash memory device, comprising the steps of:
- sequentially forming a tunnel oxide film and a first polysilicon film on a semiconductor substrate and then etching said first polysilicon film and a given region of said tunnel oxide film;
- 10 forming a lower oxide film on the entire structure;
- performing a nitrification process to form a nitrogen layer below said lower oxide film;
- performing an annealing process using an oxygen gas so that said nitrogen layer is moved on the surface of said lower oxide film, thus forming a
- 15 nitride film;
- forming an upper oxide film on the entire surface to form a dielectric film consisting of said lower oxide film, said nitride film and said upper oxide film;
- sequentially forming a second polysilicon film, a tungsten silicide film
- 20 and an anti-reflection film on the entire structure; and
- patterning said anti-reflection film, said tungsten silicide film, said second polysilicon film and said dielectric film to form a control gate, and then patterning said first polysilicon film and said tunnel oxide film to form a floating gate.

2. The method of manufacturing a flash memory device according to claim 1, wherein said lower oxide film is formed using DCS gas and  $N_2O$  or NO gas at the temperature of  $810 \sim 850^\circ C$ .

5

3. The method of manufacturing a flash memory device according to claim 1, wherein said lower oxide film is formed in thickness of  $35 \sim 100 \text{ \AA}$  at the deposition rate of  $4 \sim 10 \text{ \AA/min}$ .

10

4. The method of manufacturing a flash memory device according to claim 1, wherein said nitrification process is performed by introducing  $N_2O$  or NO of  $1 \sim 20\ell$  into the furnace at the temperature of  $810 \sim 850^\circ C$  for  $10 \sim 20$  minutes, thus forming a nitrogen layer of  $3 \sim 5 \text{ \AA}$  in thickness in said lower oxide film.

15

5. The method of manufacturing a flash memory device according to claim 1, wherein said annealing process using the oxygen gas is performed by introducing an oxygen gas of  $5 \sim 20\ell$  into the furnace at the temperature of  $850 \sim 950^\circ C$  for  $5 \sim 20$  minutes.

20

6. The method of manufacturing a flash memory device according to claim 1, wherein said upper oxide film is formed using DCS gas and  $N_2O$  or NO gas at the temperature of  $810 \sim 850^\circ C$ .

7. The method of manufacturing a flash memory device according to claim 1, wherein said upper oxide film is formed in thickness of 35 ~ 100 Å at the deposition rate of 4 ~ 10 Å/min.

5 8. The method of manufacturing a flash memory device according to claim 1, wherein said second polysilicon film is formed in a double structure of a doped polysilicon film and an undoped polysilicon film.

9. The method of manufacturing a flash memory device according to claim 8, wherein said polysilicon film and said undoped polysilicon film is deposited at the ratio of 4:1 ~ 7:1.